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Role stress, role resources, and mental health outcomes among recreational runners

Leslie Dillon

University of New Hampshire, Durham

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ROLE STRESS, ROLE RESOURCES, AND MENTAL HEALTH OUTCOMES AMONG
RECREATIONAL RUNNERS

BY

LESLIE DILLON
Biology, B.A., DePauw University 2006

THESIS

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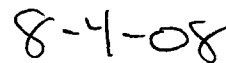
Thesis Director, Karen Van Gundy,
Associate Professor, Sociology



Benjamin C. Brown, Associate Professor,
Sociology



Sharyn J. Potter, Associate Professor,
Sociology



Date

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ABSTRACT

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Leslie Dillon

University of New Hampshire, September, 2008

Research on the impact of multiple role management on mental health outcomes has yet to consider the implications of a recreational athlete role. Role Conflict theory predicts that incorporating this additional role would increase potential for stress manifested as a mental health problem. Role Expansion theory predicts the social qualities of this additional role can be helpful in buffering against stress. In an exploratory study, a sample of recreational runners from New England were recruited by email to complete an online survey that evaluated role resources, role stress, depression, and alcohol problems. Results show no significant relationships between role stress, role resources, and mental health outcomes. Gender differences in mental health outcomes are absent among this sample. This study is unable to support or contradict the Role Conflict Theory and Role Expansion Theory. Implications for future research are discussed.

CHAPTER I

LITERATURE REVIEW

Introduction

In 2008 nearly 22,000 runners completed the Boston Marathon, the world's oldest annual marathon and one of the most popular marathons in the United States; almost 9,000 of those runners were women. This proves a marked contrast from several decades ago; in 1972 only 8 females lined up to start the race (Boston Athletic Association 2008). The small amount of literature exploring long distance running (Abbas 2004; Serrvallo 2000; Tulle 2007) suggests that women are less likely than men to incorporate running and racing into their daily lives because of institutionalized barriers. It appears however, that more and more people, and increasingly more women, continue to enter into athletic competitions that require a significant amount of time dedicated to training and racing.

This study seeks to investigate the potential mechanisms behind this trend by examining whether the qualities of maintaining a running and racing schedule influence the everyday experience of balancing multiple social roles. In particular, the extent to which running role stress and

running role resources mediate and/or moderate the effects of gender on mental health outcomes has not been considered previously. Similar research has explored the moderating effects of gender in the relationship between home-to-work spillover stress and mental health outcomes (Schieman, McBrier, and Van Gundy 2003). This project will contribute to this vein of research by studying a unique population that balances a demanding running and racing schedule in addition to maintaining roles within the household and workplace. While it would be ideal to compare this population with the greater population, for the purposes of this exploratory study it will be sufficient to simply survey a group of runners to begin to investigate variation within the recreational runner group itself.

In what follows, I will outline the body of existing literature, the gap that the current research will fill, and my hypotheses. Specifically, I will review the research that has contributed to the development of Role Conflict Theory and Role Expansion Theory, as well as the literature that has explored gender differences with regards to these theories. I will also reveal how these theories relate to the role of a recreational runner and discuss the research questions and hypotheses that I have developed to guide this research project.

Background

As equality has increased between the sexes, it has become more and more common for both men and women to hold prominent positions both outside and inside the home (Nordenmark 2004). While this increase in equality is generally viewed as a positive improvement in contemporary American society, the balancing of demands from these multiple roles has had major impacts, both positive and negative, on the day-to-day lives of individuals. Much research has been dedicated to examining the influences of the switch from traditional gender roles within the spheres of work and home to greater gender equality, and several theories have been generated from this work (Sieber 1974; Scanzoni and Fox 1980; Van Snell, Brief, and Schuler 1981; Gore and Magione 1983; Thoits 1983; Cooke and Rousseau 1984; Bielby and Bielby 1989; Golding 1989; Hochschild and Machung 1989; Menaghan 1989; Simon 1995; Barnett and Hyde 2001; Nordenmark 2002). Here I draw on two competing theories: Role Conflict and Role Expansion.

Role conflict theory focuses on the demands generated from engaging in multiple roles and how these demands can lead to conflict in the face of limited time and resources. Some demands must be prioritized over others, and this can lead to distress when individuals feel they are unable to fulfill the expectations of one or several roles (Van Snell, Brief, and Schuler 1981). Nowhere is this more relevant than in the fragile

balance between work and family, arguably the two most conflicting institutions in our society (Role Conflict 2001). With weekly work hours on the rise for many individuals, it has become apparent that time spent inside the home with family is decreasing (Jacobs and Gerson 2001).

The other theory derived from this body of literature is the Role Expansion theory. This theory offers a competing perspective that focuses not on the negative impact of multiple roles, but the benefits generated by participating in many different roles. The premise of this theory is that the rewards of role accumulation outweigh any stress produced by role conflict. Some of these rewards can include role privileges, resources for status enhancement, and personal gratification (Sieber 1974). Again, the research supporting this theory looks at the accumulation of work and family roles (Golding 1989; Nordenmark 2004)

It is apparent that some of the most predominant and culturally relevant literature on Role Conflict and Role Expansion theories focuses around balancing work and family roles. With substantial findings backing both perspectives, however, it is not readily apparent if maintaining both work and family roles is an overall positive or negative experience for individuals. It is also unclear whether or not societal institutions support individuals while they attempt to do so. The incorporation of additional roles, like the running role, has not been explored as thoroughly; thus the backdrop from which to draw conclusions is unclear. A more in depth

description of Role Expansion and Role Conflict theories is needed to consider where the role of running might fit into this picture.

Role Expansion Theory: Multiple roles generate multiple resources

In some of the earliest studies of research on multiple roles Thoits (1983) found that multiple roles correspond with increased interpersonal security. Since her study, research on the positive effects of multiple roles on health and well being has continued to accumulate (Repetti and Crosby 1984; Pietromonaco et al. 1986; Verbrugge 1986; Barnett, Marshall, and Singer 1992; Hong and Seltzer 1995; Barnett and Hyde 2001; see Nordenmark, 2004). Some of the more specific findings include the following: individuals with greater self-complexity are less prone to depression, perceived stress, physical symptoms, and occurrences of illness (Linville 1987); greater role involvement is associated with greater well-being (Ahrens and Ryff 2006); and the increase of number of roles or expectations of multiple social roles over time is negatively correlated with the risk of suffering from insomnia or prolonged illness.

Barnett and Hyde (2001), in their review of the literature, conclude that multiple roles are beneficial to both men and women in terms of mental health, physical well being, and relationship satisfaction. These benefits result from the buffering, social support, opportunities to experience success, and expanded frame of references that can be gleaned from holding multiple social roles. In additional research on

buffering effects, researchers have found that the negative effects of poor job experiences (Barnett, Marshall and Pleck 1992), childcare burdens (Barnett, Marshall and Sayer 1992), and elderly care giving (Voydanoff and Donnelly 1999; Edwards et al. 2002) can be buffered by success and satisfaction in other roles. Additionally, researchers have shown that engaging in health promoting behaviors (regular exercise included) is an effective coping strategy for dealing with stress (Pomaki, Supeli and Verhoeven 2006).

Taken together, these findings suggest that maintaining additional social roles, such as a runner, is beneficial to individuals' well being for several reasons. Beyond the physiological benefits to physical health, it is possible that committing to the runner role may help by increasing the possibilities of experiencing the benefits of buffering, increased social support, and additional opportunities to experience success. While Barnett and Hyde (2001) generalize the benefits to apply to any additional role, it seems that the qualities of running and racing are designed to fill these niches. Training can be done alone or with partners, groups, or clubs. If done alone, running can serve as a time for individuals to either relax and temporarily disregard other demands of the day or to sort through precisely those daily expectations. This time spent could certainly act as a coping resource or buffer against role conflict stress. Additionally, these

same thoughts could be vocalized if running with others, which could serve both stress buffering and social support functions.

Even if a runner does not train with other runners on a regular basis, social support may be found in simply being a part of a running community, perhaps at gatherings of runners at racing events, or even with through more remote connections such as partaking in information sharing through various media outlets (magazines designed for runners, online forums, televised racing events). Moreover, running, and racing in particular certainly provides an avenue for experiencing success. Improving times and competing one-on-one with other runners can provide very tangible indicators of success.

In considering the qualities of running it is important to note that these benefits may not be equally accessible to all. People who are able to commit to running lifestyles are most likely to be the individuals who have self-selected into this segment of the population. One of the more obvious barriers to overcome is being physically capable of running. Therefore individuals with chronic or serious injury or physically handicapped individuals would be much less likely to be represented in this population than the general population. There are also less conspicuous barriers to maintaining a regular running schedule that have become apparent through recent research. Gender, age, and social

class inequalities have been documented in populations of recreational long distance runners (Serravallo 2000; Tulle 2007; Abbas 2004).

It is also important to recognize that the relationship between holding multiple social roles and well being is not necessarily linear. Nordenmark (2002) reports that working men and women do not find holding multiple roles distressful, but often do report a desire to reduce hours at one or more roles. Even Barnett and Hyde (2001) qualify the beneficial aspects of multiple roles by providing evidence for the conditions whereby the number of roles and time demands of each can reach limits that can reverse the relationship. These upper limits beyond beneficiality are where proponents of Role Conflict theory have focused in their attempts to understand the negative consequences of holding multiple social roles.

Role Conflict Theory: Multiple roles generate multiple demands

In a competing position on the issue, some scholars have noted that the negotiation of multiple roles can result in role conflict. It has been well documented that when role conflict exists, it can result in negative consequences for individuals. The negative emotional impact of role conflict has been documented (Menaghan 1994; Pearlin et al. 1981) as well as the impact of these social causes on psychological distress (Mirowsky and Ross 1989). Researchers have also found negative impacts on physical well being and life satisfaction (Barnett 1994; Bedeian, Burke,

and Moffett 1988; Frone, Russell, and Cooper 1992; Gore and Mangione 1983; Grzywacz 2000; Grzywacz and Marks 2000; Leiter and Durup 1996; see Schieman et al. 2003).

Of course, work-family conflict has been explored specifically. Researchers have reported an increased potential for "spillover-related" stress when men and women hold work and family roles (Bielby and Bielby 1989; Glass and Estes 1997; Googins 1991; Silver 2000; Skrypnek and Fast 1996; see Schieman et al. 2003). Stress and low levels of mental well-being have been documented among working women with children (Bolger et al. 1990; Cleary and Mechanic 1983; Doyle and Hind 1998; Lundberg et al. 1994; Reifman et al. 1991; see Nordenmark 2002) and employed men (Cleary and Mechanic 1983; Glass and Fujimoto 1994; Kinnunen and Mauno 1998; Moen and Yu 1998; Ozer 1995; see Nordenmark 2002).

Additionally, Greenhaus and Beutell's (1985) review of the literature led them to conclude that there are three forms of work-family conflict including time-based conflict, strain-based conflict, and behavior-based conflict. Time-based conflict has the potential to be particularly salient in the balance of work, family, and running roles, and this will be discussed further below. They also concluded that conflict intensifies when the roles are salient to the person's self-concept and/or there are negative sanctions for noncompliance. This refers primarily to work and family roles, as they are some of the most valued and regulated in contemporary

American society. The running role may not "rank" quite so high in society's eyes and poses potential for conflict if it were seen as 'taking away' from an individual's ability to fulfill work or family roles. Finally, Williams and Alliger (1994) found that daily involvement in family roles was positively correlated with perceptions that family interfered with work. An individual that incorporates running into their daily routine may express a similar perception of interference.

To summarize this review of the literature that supports Role Conflict theory, one of the primary conclusions of this perspective is that the ability to fulfill the expectations of multiple roles is influenced by access to time and resources. In the face of limited time and resources, individuals often experience stress when the demands of multiple roles conflict with one another. The stress of role conflict has been well documented among the population of people who juggle work and family roles, but there has been no research that explores the addition of a running role to the balance of work and family demands. From the Role Conflict perspective, running may create demands that conflict with the demands of working and family life. For example, running, especially on an every day basis, takes up a significant amount of time. Obviously training includes time spent running, but can also include time spent preparing for and transitioning from a run (i.e. changing clothes, traveling to a specific location to run, stretching), and perhaps, most significantly, any of this

time is time that could be spent doing something related to a work or family role. Running can also be a financial investment. Though there is not much equipment required, appropriate footwear is essential and many choose to invest in running specific attire, group or club membership fees, and race entry fees. This competition for time and money has the potential to make the running role stressful to maintain while also balancing work and family roles.

Because this study will only survey individuals who currently identify themselves as runners, it is possible that individuals who experience the highest levels of conflict with the runner role may have given up running and would be excluded from this particular study. It is also possible that those with the lowest levels of conflict could be over represented. While this possibility presents itself as a limitation to the scope of this research, the primary focus of this study is simply to begin to get an understanding of the variation within the recreational runner population before attempting to understand variation between this group and others.

Gender Differences

The preceding discussion has not included any mention of gender differences. A review of the literature on Role Conflict and Role Expansion theories would be incomplete, however, without considering how sex differences might influence the way men and women balance the demands of multiple roles. These differences are important to understand

when exploring the benefits and consequences of adding the runner role and its demands to an individual's role constellation.

Despite the noticeable increase in equality in work and family roles between the sexes (Nordenmark 2004) it has been established in the literature that there are still prominent gender differences in the value system of contemporary American society. For example, as recently as 2006, researchers found that groups of male and female workers matched for education, occupation, age, and parental status still display traditional gender differences in division of household responsibilities (Berntsson, Lundberg, and Krantz 2006).

The value system that drives this division between the sexes produces differences in the expectations of men and women in similar roles and differences in mental health outcomes. Previous literature has revealed that these differences are linked (Simon 1995; Menaghan 1989; Ross et al. 1983; Thoits 1986). Additionally, studies have shown that gender differences in role expectations may contribute to differences in outcomes (Rosenfield, 1999b).

Differences in Expectations

Much of the literature in the role conflict vs. role expansion debate has brought gender to the front as a significant predictor of whether multiple roles are stressful or beneficial. There are several different positions in the literature that examine the interaction of gender and multiple roles.

Because no literature to date has explored the maintenance of a running role within the framework of Role Conflict and Role Expansion theories it is important to consider how gender difference may play into the equation.

In support of the role conflict theory, some have suggested that multiple roles generate stress for women because there are sex differences in the meanings of roles and role configurations (Simon 1995; Menaghan 1989; Ross et al. 1983; Thoits 1986). Additionally, Nordenmark (2002) concluded that it is difficult to be engaged simultaneously in childcare and paid work, and this finding is more relevant for women than men given women's continued primary responsibility for housework and childcare (Hochschild and Machung 1989). This line of research would predict that maintaining a running role is more stressful for women because running does not directly contribute to the female stereotype of fulfilling the home and childcare duties for which women have been traditionally held accountable. In contrast, for men, the work role (or breadwinner role) correlates highly with their home and family expectations. This seems to leave greater freedom of time for men to take on the additional role of running (Seravallo, 2000).

While traditional gender role expectations can contribute to stress in balancing work and family roles, research indicates that unclear expectations can also become a factor in generating stress. The explanation here is that agreement about who performs certain tasks is

higher in couples with a more traditional division of labor (Bahr et al. 1983; Moen and Yu 1998; Scanzoni and Fox 1980; see Nordenmark 2002). The traditional division of labor dictates that women do not seek out avenues of accomplishment outside home and family life, so it is possible that running, a role that is separate from this sphere, could create the need for change or simply confusion in an atmosphere where expectations were once clear.

Other research on gender endorses the role expansion theory. For example Hochschild (1997) identified a shift in the balance of work and family life for women where home life has become the center of stress while one's occupation offers a sense of accomplishment. Peitromonaco et al. (1986) found that although working women report significant levels of stress, this stress is independent of the number of roles held. What was positively correlated with a greater number of social roles was higher self-esteem and greater job satisfaction. In contrast to the previously mentioned research, this body of literature would infer that because running offers an opportunity for the tangible sense of accomplishment and satisfaction, women would not differ significantly from men in role conflict stress.

Moreover, the role expansionist theory, as discussed previously, purports that multiple roles generate multiple resources, increased social support among them (Barnett and Hyde 2001). Social support, however,

has been found to be a more effective stress buffer for women than men (Vaux 1985). The opportunities for social support in the running community have been mentioned above, and in the context of gender differences it seems logical to conclude that women would report greater benefit from the social support resources of running than men.

All of this research offers support for the institutionalized stressors that target women more than men. What this research has yet to tell us is whether or not there is a clear relationship between gender, multiple role management, and mental health outcomes. Because the existing literature does not necessarily offer clarity, it is important to continue to test the interaction of gender with the competing theories of role conflict and role expansion. This project will use a three step model to examine the presence or absence of gender differences and interactions with the gender. This model will be discussed in further detail after the presentation of hypotheses.

Differences in Outcome

While some ambiguity exists in the gender-focused literature, sex differences in mental health outcomes of the stress process have been well documented. In the sociological literature this phenomenon is best understood through the "stress process model" (Pearlin 1989). This model "suggests that a person's position in the social system influences systematically his or her exposure to stressful life conditions, which in turn

increases risk for mental health problems" (Van Gundy 2002: 347). In other words, mental health outcomes vary across social statuses such as gender.

Men and women do not show different overall rates of disorder, but gender differences in types of disorders have been well documented (American Psychiatric Association 1994; Dohrenwend and Dohrenwend 1976; Kessler et al. 1993; Kessler et al. 1994; Rosenfield 1999b; see Van Gundy 2002). Women display higher rates of internalizing disorders such as depression (Rosenfield 1999a) while externalizing disorders such as substance abuse and antisocial behavior are more prevalent among men. Stated another way, women tend to transfer negative feelings and stress inward towards the self while men transfer these same feelings outward.

Several hypotheses exist regarding this gendered tendency. The vulnerability hypothesis proposes an interaction between gender and stress where men and women respond to stress in different ways. The exposure hypothesis, on the other hand, argues that women are systematically more exposed to stress. Because research has supported and refuted both views, a third perspective has been developed. The multiple outcomes view suggests that men and women have "different and distinctive" responses to stress (Aneshensel 1999; Aneshensel, Rutter, and Lachenbruch 1991; Hoffman and Su 1998; Horwitz, White, and Howell-

White 1996; see Van Gundy 2002: 348). In an attempt to thoroughly assess stress amongst a population of male and female runners, the multiple outcomes perspective has been adopted in this research project. Measures of both depression and alcohol problems are included in this study to assess mental health outcomes.

Hypotheses

To review the literature presented here and how it relates to the current research project, I will now present my hypotheses. The variables that will be used in this study have been discussed above and include: gender, running role stress, running role resources, depression and alcohol problems. The potential relationships between these variables will be assessed in a series of three models.

My first series of hypotheses center around gender differences in the variables to be included in this study. Based on previous research, I predict that women will report greater levels of depression while men report greater levels of alcohol problems. I also expect to find that women will report greater levels of running role stress, particularly between home and running roles. Finally I believe women will report greater running role resources, especially in terms of social support.

The second series of analyses will calculate the mediating effects of the qualities of a running role on the relationship between gender and

mental health outcomes. I predict that both running role stress and running role resources mediate this relationship.

Finally, the third series of analyses will ask: Do the qualities of running interact with gender to moderate the effects of gender on mental health outcomes? I predict that running role stress and running role resources will interact with gender such that for females only, running role stress and running role resources magnify the relationship between gender and mental health outcomes.

While the maintenance of multiple roles and mental health outcomes has never been studied specifically amongst a population of runners, the aforementioned hypotheses are grounded in a vast body of research full of many perspectives on this topic. The current project seeks to add to this literature by proposing to explore the characteristics of a unique population. The preceding discussion of literature and my explanation of hypotheses sets the stage to move into a detailed description of how this research study was conducted. I will first explain the sample used and then discuss how my measures were constructed.

CHAPTER II

METHODS

Sample

Respondents were recruited by email through the LOCO Running Company in June 2008. The LOCO Running Company was founded in New Hampshire in 2003 by a group of local runners and develops unique running shoes. LOCO is also involved in the New England running community. The company organizes a series of races, supports local clubs and teams, and maintains a storefront in Newmarket, NH to interact with runners face-to-face (www.locorunning.com). These qualities of the company made it an appealing link to the New England running community. One of the company's founders agreed to include a message about my research and request to participate via a hyperlink in the company's monthly e-newsletter. The link contained in this email directed respondents to a questionnaire at Surveymonkey.com. This survey included items that were meant to collect demographic characteristics as well as assess depression, alcohol problems, and levels of running role stress and running roles resources.

The survey in its first wave went out to 10,000 email addresses in the LOCO database. In all, 140 questionnaires were collected and 105 contained enough data to use for the analyses presented in this thesis. The limitations of this small sample size will be discussed further in a later chapter, but despite the size, the data contained in the 105 questionnaires provided a unique insight into the lives of a group of local recreational runners.

Measures

Dependent Variables

Depression. This variable indicates levels of depressive symptomatology and is measured using the Center for Epidemiological Studies Depression Scale (CES-D) (Radloff 1977). This scale consists of 20 items (See Appendix A) that assess depression by asking respondents to indicate, "How often in the last two weeks have you had each of the following feelings or experiences". Responses choices include (1) "not at all," (2) "occasionally," and (3) "frequently". To calculate a depression score from this scale, four of these items are reverse coded for positive responses and then scores from all 20 items are summed. Higher scores reflect higher depressive symptoms. Minimum and maximum values were 20 and 48 out of a possible score of 60; the average depression score for this sample was 27.29.

Alcohol Problems. This variable indicates levels of alcohol problems and is measured using a series of questions that asked respondents how often alcohol consumption interrupted day-to-day activities. The scale consists of 14 items (See Appendix B) that address how often alcohol consumption interrupts daily activities by asking respondents, "Please indicate how often the following situations were true for you in the past six months by selecting the best response." Response choices include (1) "never," (2) "rarely," (3) "sometimes," and (4) "often". Due to the highly skewed nature of the original responses, scores were then dichotomized so that anyone reporting no alcohol problems at all were scored with a (0) and anyone reporting any level of alcohol problems were scored with a (1). Using this dichotomous measure, 67% of the sample reported no alcohol problems and 33% reported some level of alcohol problems.

Independent Variables.

Sex. Sex was determined by self-response to the indicator "Please select your sex". This was a dummy-coded variable where "Male" and "Female" were coded 0 and 1 respectively. 73% of the respondents in this study were female and 27% were male. Implications of this unequal gender distribution will be discussed in detail in a later chapter.

Running Role Stress/Running Role Resources. These variables correspond with the Role Conflict and Role Expansion theories. Running Role Stress is designed to measure the amount of dissatisfaction with the

role as a runner and the potential for conflict of this role with other roles.

Running Role Resources is designed to measure the positive aspects of the running role, including social support and a sense of satisfaction or achievement.

Running Role Stress. Items assessing Running Role Stress measure role conflict and role spillover. Role conflict was determined by responses to items that asked whether running interfered with work or home roles or vice versa. The questions specifically asked:

How often do the demands of your family interfere with your running/training?

How often do the demands of your running training interfere with your family life?

How often do the demands of your job interfere with your running/training?

How often do the demands of your running training interfere with your job?

The choices for response were (1) "never" or "not applicable," (2) "once in a while," (3) "fairly often," and (4) "very often".

A factor analysis revealed that these items loaded onto two separate factors that I will refer to as home-running stress and work-running stress (See Table 1). These factors were combined to create the total running stress variable but these two factors were also run separately in analyses.

Scores ranged from 2 to 6 for both home-running stress and work-running stress and 4 to 12 for total running stress. Average scores were 3.70 for home-running stress, 3.61 for work-running stress, and 7.32 for total

running stress. Running Role Stress scores were standardized for regression analyses.

Table 1. Factor loadings for Running Resources and Running Stress items.

	Home-Running Stress	Work-Running Stress	Social Support	Satisfaction
<i>Running Role Stress Items</i>				
1. Family interferes with running	.381	.091	-.186	-.135
2. Running interferes with family life	.414	.172	-.019	.289
3. Job interferes with running	-.003	.563	.013	-.103
4. Running interferes with job	.141	.553	.239	-.019
<i>Running Role Resources Items</i>				
1. Close to running partners	-.023	.082	.899	.087
2. Time to talk with running partners	.008	-.004	.913	.055
3. Feel appreciated by running partners	-.031	.042	.914	-.001
4. Importance of running	-.019	.047	.242	.697
5. Running a source of satisfaction	.057	-.147	-.050	.677

Note: Presented are rotated factor loadings. Items in bold load on the factor indicated at the top of the column.

Running Role Resources. Items assessing running role resources measure social support and satisfaction levels. Social support was measured using the following series of statements:

"Please indicate which category best describes your experience of running/training by choosing the best response"

I feel close to the people I run with.

I have people I run with who would always take the time to talk over my problems should I want to.

I often feel really appreciated by the people I run with.

Response choices included, (1) "not at all like my experience" or "not applicable," (2) "somewhat like my experience," (3) "much like my experience," and (4) "very much like my experience". Responses to these three statements were summed to create the social support variable which ranged from 3 to 12 and had an average score of 8.48.

Satisfaction with running was evaluated with two items that asked the respondent to, "Please indicate how much you agree or disagree with each of the following statements about your running/training by selecting the best response" for these statements:

Some of the most important things that happen to me involve my running/training.

My running/training is a source of great satisfaction for me.

Response choices included, (1) "strongly disagree," (2) "somewhat disagree," (3) "somewhat agree," and (4) "strongly agree". Responses to these two statements were summed to create the satisfaction variable, which had a minimum score of 2, a maximum score of 8 and an average of 6.79 for this sample.

A factor analysis of all five previously mentioned items revealed that they indeed loaded on two separate factors (See Table 1) that I will refer to as Social Support Running Resources and Satisfaction Running Resources. The scores of the social support variable and satisfaction variable were standardized and then added together to create the total running resources score. For the total running resources score, minimum

and maximum scores were -3.66 and 1.91; average score was zero. Both the total running resources variable and the social support and satisfaction variables, in their standardized forms, were run in analyses.

Sociodemographic variables. The following sociodemographic variables were included as controls for regression analyses in this study.

Age. Respondents were asked to provide their age in years. Ages in this sample ranged from 22 to 73 with an average respondent age of 40.42. Standard deviation was 11.22.

Socioeconomic status (SES). Respondents were asked to indicate the category of their total household income. While most measures of socioeconomic status (SES) include information on education, employment, and income, this measure was used as a very rough estimate of SES. Choices included (1) "no personal income", (2) "under \$10,000", (3) "\$10,000-19,999", (4) "\$20,000-29,999", (5) "\$30,000-39,999", (6) "\$40,000-49,999", (7) "\$50,000-59,999", (8) "\$60,000-69,999", (9) "\$70,000-79,999", (10) "\$80,000-89,999", (11) "\$90,000-99,999", (12) "\$100,000-124,999", (13) "\$125,000-149,999", (14) "\$150,000-174,999", (15) "\$175,000-199,999", and (16) "\$200,000 or more". More than half of the sample reported a total household income of \$90,000 or greater with the most respondents falling under the \$100,000-124,999 category. The implications of the high income status of this sample will be discussed in a later chapter.

Twenty-five of the 105 questionnaires collected were missing data on this item. This occurrence is not surprising, as individuals in higher income categories are less likely to reveal information. In order to maintain a sample size over 100, I input the median value of the sample (\$90,000-99,999) where data were missing.

It is possible that respondents who chose not to answer this question are unlike the respondents who did provide income information and substituting the median like this could significantly distort the data. In an attempt to gauge the effect of substituting the median value for missing cases, analyses were run both with and without these 25 cases. While the mean income values were altered, including these cases did not produce results that differed in significance and thus I decided to use 105 cases rather than the 80 with complete data simply to give more power to the analyses.

Married Status. Respondents were asked to indicate their marital status by selecting one of the following identifiers: (1) "Married", (2) "Separated", (3) "Divorced", (4) "Widowed", or (5) "Never Married". Due to the small number of respondents in the separated ($n=0$), divorced ($n=16$), and widowed ($n=3$) categories, scores for this item were then collapsed into a dichotomous variable where (1) indicated married status and (0) indicated non-married status. 64% of the sample reported being married.

Parent Status. This was also a dichotomous measure. Respondents were asked "Do you have any children?" a response of "yes" was scored (1) and a response of "no" was scored (0). 51% of the sample fell under the category of "parent".

Race. Race was also considered as a control variable and was measured by an item that asked respondents "Which of the following categories best describes your racial background?" Choices included (1) "Non-Hispanic White", (2) "Black or African American", (3) "Asian or Pacific Islander", (4) "American Indian or Alaskan Native", (5) "Hispanic", and (6) "Mixed Race". Because such a small proportion of the sample ($n=4$) indicated a racial background other than "Non-Hispanic White", this variable was not included in analyses.

CHAPTER III

RESULTS

Table 2 shows descriptive statistics of the study variables for the total sample and by sex. In contrast to expectations based on literature on gender and mental health outcomes, males and females in this sample did not differ significantly in mean levels of either depression or alcohol problems. As predicted females did, however, display higher mean levels in social support resources ($t=-3.02$; $p<.01$). A mean difference was also observed in the income measure but this should not influence further analyses, because all multivariate analyses adjust for sociodemographic variables. It should also be noted that in Table 2 males and females appear to differ in average age ($t=1.72$, $p<.10$) and overall running resources ($t=-1.75$, $p<.10$), but due to the small size of the sample, these differences were not significant at the $p<.05$ level.

Table 2. Means of Study Variables for the Sample and by Sex

	Sample (N = 105)	Female (n = 77)	Male (n = 28)
Depression	27.29	27.51	26.67
Alcohol Problems	.33	.33	.32
Running Resources	.00	.15	-.42 [^]
Running Resources: Social Support	8.48	9.06	6.89**
Running Resources: Satisfaction	6.79	6.77	6.85
Running Stress	7.32	7.29	7.39
Home-Running Stress	3.70	3.67	3.78
Work-Running Stress	3.61	3.61	3.60
Age	40.42	39.26	43.53 [^]
Income	10.19	9.70	11.53*
Married	.64	.63	.67
Parent	.51	.46	.64

*p<.05; **p<.01 (two tailed)

[^]p<.10

Table 3 presents a series of multivariate ordinary least squares (OLS) analyses to examine the effects of sex, running stress, and running resources on depression. Equations 1 to 5 examine role conflict and role expansion theories with respect to depression as follows: Eq.1 regresses depression on sex and sociodemographic variables; Eq. 2 adds running stress to the model; Eq. 3 tests a sex x running stress interaction; Eq. 4 replaces running stress with running resources; and Eq. 5 tests a sex x running resources interaction.

Table 3. The Effects of Sex, Running Stress, and Running Resources on Depression (N=104)

	1	2	3	4	5
Female ^a	.99	.95	.92	.98	.92
Age	.06	.07	.08	.06	.06
SES	.15	.07	.05	.15	.11
Married	-1.24	-1.04	-1.16	-1.24	-1.30
Parent	-1.30	-1.49	-1.45	-1.30	-1.20
Running Stress		1.18*	.25		
Female * Running Stress			1.26		
Running Resources				.01	.40
Female * Running Resources					-.56
Constant	23.76	24.15	24.18	23.77	23.83
Adjusted R ²	.02	.01	.01	-.03	-.03

Note: Unstandardized OLS regression (Eqs. 1-5)

^a Female=1; Male=0

*p<.05 (two-tailed)

Because there were no significant mean differences in depression between males and females, mediating effects of running role resources and stress are not possible; thus Eqs. 2 and 4 represent an attempt to discover possible suppressor effects. Suppressor effects were not observed for either running stress or running resources as any changes in the sex coefficient (from $b = -.69$ to $b = -.64$ and $b = -.69$ to $b = -.67$, respectively) were very small. Similarly in tests for moderating effects (Eqs. 3 and 5) the sex x running stress and sex x running resources interactions were also nonsignificant. Thus the findings do not support nor contradict gendered role conflict nor role expansion explanations with regards to depression. Interestingly, the only significant predictor of depression scores was running stress in Eq. 2.

Table 4 presents a series of multivariate logistic regression analyses to examine the effects of sex, running stress, and running resources on alcohol problems. Equations 6 to 10 assess the effects of sex, running stress and running resources on alcohol problems. Eq. 6 regresses alcohol problems on sex and sociodemographic variables. Eq. 7 adds running stress; Eq. 8 includes a sex x running stress interaction term. Finally, Eq. 9 assesses sex, sociodemographic variables, and running resources; and Eq. 10 adds a sex x running resources interaction.

Table 4. The Effects of Sex, Running Stress, and Running Resources on Alcohol Problems (N=104)

	6	7	8	9	10
Female ^a	-.23	-.24	-.24	-.28	-.26
Age	-.01	-.01	-.01	-.01	-.01
SES	-.007	-.03	-.03	-.005	-.009
Married	-.61	-.58	-.58	-.62	-.60
Parent	-1.17**	-1.27**	-1.27**	-1.17*	-1.19*
Running Stress		.37	.36		
Female * Running Stress			.005		
Running Resources				.13	.01
Female * Running Resources					.17
Constant	1.20	1.30	1.30	1.25	1.23
Pseudo-R ²	.11	.13	.13	.11	.11
Model Chi-Square	14.90	17.43	17.43	15.27	15.39
(-2) Log-Likelihood	-58.97	-57.71	-57.71	-58.79	-58.79

Note: Logistic (Eqs. 6-10) regression coefficients.

^a Female=1; Male=0

*p<.05; **p<.01 (two-tailed)

The lack of significant mean differences between males and females in alcohol problems again dictated that Eqs. 7 and 9 test for suppressor rather than mediating effects, again, none were found. Eqs. 8 and 10 assessed the moderating effects of running stress and running

resources on gender and alcohol problems, but these were also nonsignificant. The only consistently significant predictor of sex and alcohol problems in this model was having children.

In separate analyses (not shown), I also tested the factors of the running stress and running resources (home-running stress, work-running stress, social support, and achievement) separately in the same equation format shown in Table 2. These analyses also resulted in nonsignificant results. In addition, I ran a log transformed depression variable in place of the non-transformed depression variable displayed in the analyses above, but this did not produce different results. I also ran analyses that controlled for average miles run per week. Although participants responses ranged from under 24 miles per week to over 75 miles per week, including this factor in analysis did not produce results different from those reported above.

To summarize my findings, I found no gender differences in mental health outcomes, running role stress, and running role resources; therefore, I was unable to test for mediating effects. Analyses revealed no significant suppressor or moderating effects of running role stress and running role resources. I did find significant differences with regards to social support resources, where females reported higher mean levels. I also found that running stress is a significant positive predictor of depression scores and parent status is a significant negative predictor of alcohol problems.

CHAPTER IV

DISCUSSION AND CONCLUSIONS

Before beginning a discussion of the findings presented in Chapter III, it would be appropriate to explore some of the limitations of this study. After a presentation of limitations, I will then go on to detail the conclusions drawn from my findings that take into account these limitations. Finally, I will conclude by considering the possibilities of future research on this topic.

Limitations

Limitations of Research Design

Measures. While the items that assess depression and alcohol problems included in this study have been used widely and proven as reliable measures, the indices used to measure running role stress and resources were developed specifically for this study. As new measures, these indices were somewhat limited in scope. The running role stress was only able to evaluate role conflict with work and home roles and running role resources only included social support and satisfaction measures.

Sampling Technique. It should be noted here that while it would have been ideal to compare runners with their non-running counterparts,

due to time and resource limitations for this particular project, such a research design was not possible to implement here. The downside of the current design is that variation in the data may be truncated by only including runners. This is true to the extent that runners conform to any certain profile of the population (i.e. in terms of mental health, alcohol use, SES, etc) as has been indicated in at least one study of this group (Seravallo, 2000).

Another consideration of sample technique to be considered here is that while I was able to distribute a link to my online questionnaire to a large number of runners associated with LOCO running, there were several problems with this technique. First, by recruiting participants through email, my sampling frame automatically excluded any recreational runner who had participated in a LOCO event but had not provided an email contact. This group could include those individuals who do not have access to the Internet or those individuals who do not wish to distribute this type of contact information. These individuals did not have an equal opportunity to participate in this study and therefore my resulting sample contains biases. This could potentially have resulted in the limited variation of mental health outcome levels in this sample.

Another aspect of my research design that could potentially be problematic is that the data collection period was short and there was only one wave of recruitment emails sent out. It should be noted that a

second wave of recruitment emails was requested but was not sent due to the LOCO company's desire to not burden their subscribers with multiple emails. This could be an explanation for the resulting small response rate.

Limitations of Sample

Sample Size. Because the response rate was so low, the power of the data in analysis was quite low as well. Unfortunately, a small sample size is less likely to generate significant results. Additionally, while I collected data on several other factors that could have been included as control variables (quantity of running and racing, weekly hours worked, etc) a small sample size made it difficult to include these variables in analyses because splitting a small sample into even smaller groups would have greatly decreased the power of the analyses. This was also the reason that some variables that were included in analysis had to be collapsed (i.e. marital status).

A small sample size also raises questions of generalizability of results. Because my findings are based on such a small number of individuals whose responses may or may not represent the full range of variation in a larger sample, it is difficult to be confident in applying these results to a whole population of recreational runners.

Sociodemographics. The high socioeconomic status of this sample presents several issues. The first is that individuals of high socioeconomic

status might be less likely to report income information. Secondly, this characteristic of the sample presents another challenge to generalizability. The data provided by the individuals in this sample are likely to correspond with the lifestyle of their socioeconomic status rather than their status as a recreational runner. This finding should also be considered through the framework provided by Serravallo (2000) who claims that individuals of higher socioeconomic status are more likely to become marathon runners.

In addition to a high SES level, this sample was also dominated by female respondents. This occurrence is not unusual (Heath et al. 2001), but could be potentially problematic in terms of reporting gender differences as the low number of male respondents reduces the power of analyses for this group.

Conclusions

While there were very few significant findings in the analyses presented in Chapter III, the lack of significance is equally provoking. A discussion of the findings and the conclusions drawn from this study follows.

Surprisingly, I found no gender differences in mental health outcomes among this sample of recreational runners. This finding contrasts with the well-documented relationship of gender and mental health outcomes (Simon 1995; Rosenfield 1999b; Menaghan 1989; Ross et al.

1983; Thoits 1986) that was discussed in Chapter 1. Additionally, this finding negates the principles of the multiple outcomes perspective that was also discussed in Chapter 1. The lack of gender differences could perhaps be explained by the small sample size and the small proportion of male respondents noted above. It could also be possible that the men and women who self-select into the recreational runner population possess other characteristics that were not measured here (such as levels of physical fitness, etc.) that mediate the relationship between gender and mental health outcomes.

Due to the lack of gender differences in mental health outcomes, I was unable to test for mediating effects of running role stress and running role resources. The presence of a significant difference between men and women in social support resources may be indicative of a potential mediating effect if differences in outcome had been present. While the relationship to gender is unclear, it also appears that running role stress is a significant predictor of depression scores.

In tests for the moderating effects of running role stress and running role resources, there were again no significant results. This means that these characteristics of running do not appear to interact with gender to produce mental health outcomes. I did find however, that having children was a significant predictor of lower alcohol problem levels. This finding corresponds with others (Leonard and Eiden 2007)

The lack of significant findings in this study prevents me from being able to offer support for either the Role Conflict theory or the Role Expansion theory; I am also unable to negate either theory. Future research on this topic may prove otherwise, however.

Future Research

With only a few improvements, future research on the characteristics of running and role management may prove more fruitful. An increase in sample size would obviously be desirable in subsequent projects. This could be improved through increased recruitment activities, for instance supplying paper questionnaires in person at race events in addition to email recruitment. Another possibility would be to offer incentives for participation, like gift certificates to local running stores or waived race entry fees. Simply increasing data collection time would be another option for expanding the sample. It might also be helpful to specifically target male runners in order to better assess gender differences.

In order to increase reliability and validity in future studies, it may be beneficial to design more comprehensive measures of running role stress and resources through the incorporation of more items. A more comprehensive approach for data collection that includes semi-structured interviews about the experience of running may increase the quality of this research as well.

Another option for future research would be to increase the complexity of analysis of the relationships between gender, running role qualities, and mental health outcomes. This could be done by including additional potentially important variables in analysis. Other variables that would be interesting to evaluate in context of the models here include athletic involvement in other sports and other mental health outcomes. Additionally, the qualities of work and family roles could also dictate the amount of role conflict an individual experiences. Including measures of work qualities, home qualities, and even work-home role conflict in future studies may be helpful. In assessing role conflict, it may be helpful to control for things such as the quantity of running and racing and hours worked outside the home.

Further research of this kind has the potential to provide greater insight on the current trend of managing multiple roles. While many studies have probed the question of balancing the roles related to work and family, it is important to recognize that there are individuals who also maintain additional athletic or recreational roles. Exploring the potential for both conflict and expansion in this balancing act could yield new insights about recreation, work and family patterns in contemporary American society.

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APPENDICES

APPENDIX A

Depression Scale Items

Please indicate how often in the LAST TWO WEEKS you have had each of the following feelings or experiences. You should answer "Not at all" if you felt this way as a result of medicine prescribed by your doctor.

I was bothered by things that don't usually bother me.
I did not feel like eating.
I felt that I could not shake off the blues.
I felt that I was just as good as other people.
I had trouble keeping my mind on what I was doing.
I felt depressed.
I felt that everything that I did was an effort.
I felt hopeful about the future.
I thought my life had been a failure.
I felt fearful.
My sleep was restless.
I was happy.
I talked less than usual.
I felt lonely.
People were unfriendly.
I enjoyed life.
I had crying spells.
I felt sad.
I felt that people disliked me.
I could not get "going".

APPENDIX B

Alcohol Problems Index Items

Please indicate how often the following situations were true for you in the past SIX MONTHS by selecting the best response.

- I was under the influence of alcohol at school or work.
- I missed school or work because of my alcohol use.
- My alcohol use caused problems with my friends.
- My alcohol use caused problems with my family.
- I consumed more alcohol than I meant to use.
- I wanted to quit or cut down on my alcohol use.
- I was under the influence of alcohol when I could have gotten hurt physically (like while swimming, climbing, using a knife, crossing the street, driving, etc.)
- I accidentally hurt myself while using alcohol.
- I stopped or cut down on important things (like sports, hobbies, work, or seeing friends and family) because of my alcohol use.
- I was suspended from school because of my alcohol use.
- My alcohol use caused problems with my emotions or nerves.
- My alcohol use caused problems with my physical health.
- I spent a lot of time getting over the effects of alcohol.
- I did not perform well on important tasks (like schoolwork, chores, sports, or work) because of my alcohol use.

University of New Hampshire

Research Conduct and Compliance Services, Office of Sponsored Research
Service Building, 51 College Road, Durham, NH 03824-3585
Fax: 603-862-3564

07-Apr-2008

Dillon, Leslie
Sociology, Horton SSC
63 Park Street
Dover, NH 03820

IRB #: 4261

Study: Role of Running in Everyday Life

Approval Date: 07-Apr-2008

The Institutional Review Board for the Protection of Human Subjects in Research (IRB) has reviewed and approved the protocol for your study as Expedited as described in Title 45, Code of Federal Regulations (CFR), Part 46, Subsection 110.

Approval is granted to conduct your study as described in your protocol for one year from the approval date above. At the end of the approval period, you will be asked to submit a report with regard to the involvement of human subjects in this study. If your study is still active, you may request an extension of IRB approval.

Researchers who conduct studies involving human subjects have responsibilities as outlined in the attached document, *Responsibilities of Directors of Research Studies Involving Human Subjects*. (This document is also available at <http://www.unh.edu/osr/compliance/irb.html>.) Please read this document carefully before commencing your work involving human subjects.

If you have questions or concerns about your study or this approval, please feel free to contact me at 603-862-2003 or Julie.simpson@unh.edu. Please refer to the IRB # above in all correspondence related to this study. The IRB wishes you success with your research.

For the IRB,



Julie F. Simpson
Manager

cc: File
VanGundy, Karen